

## Nature-friendly land management in the Zámoly Basin

The Pro Vértes Public Foundation for Nature Conservation and the Pro Vértes Nonprofit Zrt. have been carrying out farming activities in the Vértes Mountains and Zámoly Basin since 1997 on their property of about 2,000 hectares area rich in natural assets. They are primarily active in nature conservation but in addition to this, they also place emphasis on nature management, education, awareness raising, tourism and operation of the Vértesi Nature Park. Their major objective is the protection of the natural and culture historical and cultural assets of the Vértes Mountains and the Zámoly Basin, preservation of their traditions and their area development and utilisation for touristic purposes. Performance of nature conservation, nature management, research, education and dissemination tasks on the areas under nature conservation protection.

### The beginnings...

Following transition to democracy in Hungary, the laws created in 1989 and in 1990 brought about major changes in land ownership. Owners of lands and their descendants whom lands had been unlawfully taken away from, were compensated by the Hungarian State. As a consequence of the system of procedure in place, areas that had been utilised as grasslands and meadows for centuries considered extremely valuable habitats for nature conservation aspects, were at a risk of becoming dis-fragmented, and their unique biosphere destroyed. In order to acquire these lands, the Pro Vértes Foundation for Nature Conservation initiated a programme for purchasing habitats at risk. As a result, lands were purchased that were considered 'worthless' for others, but were rich in natural assets. By concluding over 600 contracts with private persons and by using the support of Hungarian, French and German nature conservation organisations, we managed to purchase almost 2,000 hectare areas in the Zámoly Basin. A major part of this is open habitat (dry and wet grassland, wet habitat, abandoned arable land), but we have also purchased over 500 hectare forests as well. With the purchase of these lands, the danger of dis-fragmentation of nature conservation areas has been avoided, but, now as an owner, we have had absolutely new water, grassland, forest and game management tasks.

### Description of the Zámoly Basin

The Zámoly Basin is a wondrous and varied habitat in the heart of Hungary at the southern feet of the Vértes Mountains, at a distance of 60 km from Budapest and 25 km from Székesfehérvár, classified among the 300 important bird areas of Europe. In the ancient times, the waves of the Pannon Sea were rolling in the basin where, as a result of its alluviation during several thousands of years, wet meadows, loess steppe and marshy habitats had evolved. This region has become a major habitat for both plants and animals as it became not only a feeding and resting site for the migrating birds but a number of new and unique plant and animal species have settled here. The blooming of pheasant's eye (*Adonis vernalis*) in masses is a spectacular site dominating the landscape in early spring, and so does the dwarf iris (*Iris pumila*) and dwarf almonds (*Amygdalus nana*) as shrubs of the loess steppe, while in summer jerusalem sages (*Phlomis tuberosa*) and dwarf everlast (*Helichrysum arenarium*) are blooming and if, weather is favourable, the yellow blanket of *Sternbergia colchiciflora* blooming during autumn time would catch ones sight. The most frequent mammal of the steppes is the souslik, which is a prey to the strictly protected saker falcon and imperial eagle nesting in the surrounding forests. Short-toed snake eagle is seen daily as hunting above the

dry and grassland steppe and wetland habitat. The wetland habitat of the Zámoly Basin, such as the Csíkvarjai meadow, were generated by the work of the waters falling down from the Vértes Mountains cutting deeply into the loess plateau. Species surviving from the Ice Age include Broad-leaved Cottongrass (*Eriophorum latifolium*), Common cottongrass and the very rare bogbean (*Menyanthes trifoliata*). Drying out marsh meadows are habitat to pompous floury plants such as bug orchid (*Anacamptis coriophora*), military orchid (*Orchis militaris*), Early-Marsh orchid (*Dactylorhiza incarnate*), Loose-flowered orchid (*Orchis laxiflora*), Early Spider-orchid (*Ophrys sphegodes*) and *Iris spuria*. In alkaline areas, *Aster tripolium ssp. pannonicum* grows in masses. The nesting of the shore birds and the rails in the quasi natural swamps and meadows is a rare phenomenon. Evidence is available to prove that in addition to the northern lapwing, the common redshank, the black tailed godwit, the European curlew and the common snipe, the ruff has also built its nest several times here. Sometimes all of the Hungarian rail (bird) species build their nests here. Of these, the nesting of the baillon's crane and corncrake is of outstanding importance. Due to different nature conservation activities, it has become a home for white-tailed eagle and the wetland habitat here have become a permanent home for the otter. As a result of the different research work performed in the recent years, the rich arthropod fauna of the mountain feet areas have become known. From the international aspect, these wet habitats are of outstanding importance also from the aspect of migrating birds. During autumn and spring time, shore birds tied to wetland habitat pass over in large masses and as a result of conservation activities, in winter time, wild geese teams of several thousands and recently even cranes gather here.

### **Nature management principles in the Zámoly Basin**

Our nature management activities commenced in 1997 are intended to serve the maintenance and development of the valuable habitats of the Zámoly Basin and their biosphere in the region of the settlement of Csákvár, Zámoly, Pátka, Csákberény and Vérteskozma. The nature friendly methods of traditional concept but performed by applying modern tools were not the results of practice experimented in domestic conditions. For that reason, in 2004, we initiated research to analyse the impact of the different procedures and machines on the biosphere and we shared our experiences with those working under similar conditions.

### **The major principles of our activities in nature conservation:**

- ensuring the preservation of the diversity of natural assets (species and habitats) and maintain landscape diversity;
- fostering the preservation of Hungarian domestic animal varieties and gene stock by extensive management;
- implementing habitats reconstruction and habitats development on degraded habitats and landscape reconstruction, respectively;
- promoting the production of healthy local products of high nutrient value;
- implementing traditional landscape use;
- ensuring the preservation of rural lifestyle and livelihood through pursuing traditional activities;
- enhancing the revitalisation of forms of living and crafts close to disappearance and their related traditions.

### **Grazing and extensive animal husbandry of indigenous domestic animals**

It was clear right from the beginning that valuable areas can only be preserved by extensive farming. This activity allows us not only to have an ecological utilisation of the area but the

related folk ways of life, habits and ethnographic values can also be maintained and revitalised, not to speak about the preservation of the ancient domestic animal species valuable also for the preservation of varieties and breeding. For that reason, we purchased a smaller grey cattle herd in 1997 which has grown to over 600 animals by these days. Temporal and spatial opportunities for grazing are determined by the status of plant associations, weather conditions, traditions as well as the nature conservation requirements. By this method dry and other areas are utilised where mowing is not desirable because of water coverage and bird nesting and because rush beds and nesting sites must be saved. On grazing areas, phased grazing is performed using a permanent electric fence. On areas surrounded by electric fence, good quality drinking water is provided for the animals. As migratory birds are happy to hunt on the steppe, the tops of the poles of the electric fence have been made suitable for sitting for the birds. Grazing animals stay on the grassland during the vegetation period from March-April to the arrival of the first more serious snow coverage depending on the weather. During winter and spring time, the herd is grazing the higher and dryer parts of the Zámoly Basin in order to avoid damaging the deep lying wet areas by treading and to avoid disturbing the large number of birds nesting on the ground in spring time. Due to the electric fence system animals are free to graze to have their feed. This is the best energy and cost saving method which may be changed in space and time, with adjustment to the weather and part of the day.

The Hungarian grey cattle is excellent for extensive rearing as it utilises very well the poorer quality grass, reeds, rush and sedge and is able to scratch out grass from under the snow. Until 1897, the Hungarian grey cattle herds of the Csákvári Esterházy manor were grazing the Csíkvarjai meadow, but after that, the Manor resettled the tempestuous herd at a different location. The grey cattle were given back the nature conservation areas of the Zámoly Basin for grazing only 100 years later, thanks to the nature management activities of the Pro Vértes Public Foundation for Nature Conservation.

For maintaining wet habitat, the most suitable animal is the domestic buffalo, which also feeds on reeds, sedge and marshland grasses. The large body animals of buffalo herd being resistant to illnesses and consisting of almost 200 specimen occupy the excellent grasslands of the Zámoly Basin in springtime and are transferred into the pan of the Százados farmstead for the winter time.

### **Bird-friendly mowing**

Most of our areas are grasslands, therefore, they are utilised by relatively late mowing – in late June and July – and by grazing the aftergrass. Thanks to our machine park and well-trained and committed employees, hay is harvested at the time and in the way as the condition of the vegetation and the presence of the biosphere allows us to do so.

We perform nature-friendly mowing in the following way:

- with attention to our knowledge on the nesting of birds ringed in the area, by setting the day supported by subject year data, at a later date than usual (late June - July), once a year;
- areas especially rich in natural values are free from mowing;
- bird-friendly method of mowing by applying a cutting width of maximum 2 m and use chain curtains attached to the front of the tractors;
- practical implementation is done by dedicated environmentally conscious and highly skilled professional employees

Hay of almost 10,000 round bales is harvested every year by this activity.

## **Habitat reconstruction in the interest of biodiversity protection**

Preservation of biodiversity is one of the hottest issues of our days. In the southern foreground of the Vértes Mountains having varied morphology the multitude of habitats is further enriched by the remaining spots generated in the Ice Age. Works performed here in former eras for the purpose of drainage have almost fully destroyed the wet habitat to be found here. The habitat reconstruction started in 2010 has implemented the complex water regulation and reconstruction of about 630 hectares area. The purpose of the project was the rehabilitation of the former natural state, reconstruction of the existing wetland habitats and maintenance of the wetland habitats. The reconstruction of the wetland habitats enabled us to stabilise the plant and animal species stock under protection related to these areas and we also contributed to the preservation of the landscape and culture historic assets.

By eliminating the ditch system intended for the drainage of the meadow we gave free way to the natural water flow, mitigated the grass yield loss caused by draught and that also enabled us to ensure the winter time fodder need of our livestock. The plant associations of the wetland habitats are not only hiding place and food for the wild life living there, but they are also feed for our ancient domestic animals which enable us to maintain their number and gene stock.

In 2009 we carried out grassland planting, as a result of which in the Zámoly Basin and in its area, **365 hectares have been re-transferred into grassland again, which is equal to grass planting of one hectare on each day of the year. As a large part of these areas had been grasslands for several hundreds of years, therefore** by re-grassing, reconstruction of the indigenous grasslands suitable for the given production site and characteristic to the given area and the promotion of rehabilitation of the natural landscape has been implemented with energy saving technology, by paying attention to the conditions of the area.

### **Reasons for former elimination of grasslands:**

- landscape historic reasons (these mostly poor quality arable lands used to be grasslands)
- reason for nature conservation water resource protection, reason for preventing erosion, deflation
- health reasons (in the crop rotation of root crops, when pesticide free organic production was carried out, under certain weather conditions, it was impossible to control the quantity of rag weed and we received indications of that from the neighbouring settlements of Csákvár and Vérteskozma as well.
- reasons related to animal husbandry (grazing animal husbandry of indigenous animals of a large number what is also pursued by our organisations can be much better performed on large consistent areas and the hay produced is used by the same sector)

In order to further enhance the success of our bird protection activities, we have placed 1,000 artificial nest boxes in order to enhance the nesting of birds, the reproduction and maintenance of species and the appearance of new species.

### **Research, monitoring**

Every year from 1 February to 20 August, we perform continuous monitoring covering the search for and protection of the nesting sites of protected and highly protected species (white-tailed eagle, imperial eagle, saker falcon, short-toed snake eagle, black stork, crane species, shore birds nesting on the ground) and the inspection of their nesting success.

In implementing the nature management tasks, a lot of information is received also from the bird watch camps (during school holidays) by our experts, voluntary people and employees in

the vicinity of the Csíkvarjai Meadow on the number of birds nesting in the area, the status of nesting in terms of time and the fledging of young birds.

We perform continuous observation of the grasslands in order to experiment with the technology of nature management and to become familiar with its impact on the biosphere.

### **Model farm in the former manor buildings**

The continuous grass management for nature conservation purposes is performed with the help of **over 700 Hungarian grey cattle and close to 200 specimens of domesticated buffalo**, donkeys, horses, sheep and also by a staff dedicated to nature-friendly grassland management and a machine park. With this livestock **we are the largest livestock owner in the region**, and with the **19 full-time employees** our organisation is considered as a significant employer.

Through all these activities, now we perform the management and research of close to **2,000** hectares area in accordance with special nature management aspects and having also in addition a forest school programme with special training and dissemination activities, **we make the relationship of agriculture and nature conservation accessible to several thousands of visitors** each year. Our organisation has been involved in providing the sites for more and more students learning primarily in **agricultural higher education institutes to obtain knowledge** and to prepare their **diploma thesis** here. For this purpose, we have concluded agreements on cooperation with five agricultural higher level institutes specialising in nature conservation.

Three animal husbandry sites that used to be farmsteads help us to keep our areas in the best conditions. The manor buildings, farmsteads that used to belong to the Esterházy estate in the former times were very close to full collapse, we have totally reconstructed them by using funds from applications. (Dohányos house, Százados farmstead, Boglár farmstead, Lóállási farmstead)

The Pro Vértes Public Foundation for Nature Conservation established a model farm which, in addition to economical grassland management, also intends to encourage the dissemination of traditional ecological farming, which is compatible with the preservation of natural resources and is sustainable. We find it important that farmers in addition to being active in agriculture should also attribute high importance to the protection of natural assets. One of the objectives of the model farm is to demonstrate ideas, methods and management methods that could ensure the preservation of the natural assets of a given area. The target persons of these activities of ours are primarily the agricultural and nature conservation experts, decision-makers, village administrators, regional administrators, researchers, micro-region managers, students of secondary and higher education institutes in agriculture, technical press, people showing interest, and farmers showing interest towards the theoretical background and working in similar areas.

We deliver technical training courses, seminars for dissemination purposes for farmers, (the training on the criteria applicable to inspecting programmes for nature conservation purposes was held by the customer relation experts of the regional inspectors of MVH – Agricultural and Rural Development Agency), and we also make publications, publish books in order to contribute to their successful and useful farming activities. (Nature-friendly grassland management, 2011; Asset preserving farming on Natura 2000 sites, 2013)

As a recognition of our special nature management activities, we received the Landscape Award of the Council of Europe in 2008.

Owing to our demonstration of nature management and 10 years' organisation work, the Zámoly Basin has become designated as an Area of High Natural Value, where, in cooperation with the local farmers, we perform special agricultural and nature conservation activities.

### **Dissemination of knowledge, ecotourism**

Experiences gathered in the pursuit of nature conservation, nature management and research activities become public domain the real sense of the word in the education, dissemination of knowledge and touristic sectors.

The habitats of the Zámoly Basin reminding us of the landscape on the Great Plain can also be toured by using a traditional and nature-friendly transportation tool, the so-called 'steppe bus'. The carriages are equipped with comfortable seats and canvas top and can carry 20-25 persons on a pleasant excursion. The participants of the excursion may become acquainted with the natural and human-made, varied biosphere of the Zámoly Basin as well as the colourful life of the farmsteads and the domestic animals to be found there (Hungarian grey cattle, and the Hungarian Simmental cattle, horses, donkeys and poultry) as well as bird species linked to farmstead way of life. On the buildings and in their vicinity, sparrows, pigeons, swallows, white wagtails and hoopoes are having their nests, in the artificial nest boxes and artificial nests barn owls, little owls and common kestrels are nesting.

The headquarters of Pro Vértes, the Geszner House is to be found in Csákvár, where an exhibition can be seen displaying the biosphere of Vértes Mountains and the Zámoly Basin. Becoming familiar with the natural and culture historic values is assisted by 3 dimensions pictures, collections, photos and graphics. Since the Zámoly Basin and Csíkvarsa Meadow are included in the list of the European bird habitats, and three built-up bird watches can be found on their territory, therefore, it is a perfect site for bird watch and bird ringing. These programmes are made known to children as early as nursery school age (birding nursery school programme), but it is presented to all age group with attention to the features of the different age groups.

### **Preservation of traditions**

In addition to the protection of natural assets, Pro Vértes also contributes outstanding importance to the preservation of the culture historic monuments and ethnographic values as well as fostering small crafts. As part of this programme, the Saint Michael Day Horsemen and Shepherd's Meeting is organised every year receiving visitors from all parts of Hungary. The prime objective of this event is that the meals, habits and tools of our predecessors and the words describing them should not be maintained only in museums and in dictionaries but should be preserved also in our daily life. Visitors of this event receive not only fine dishes and have a good time, but the almost forgotten everyday life of traditional shepherds and horsemen also become vivid for them.